A background image showing a dense arrangement of molecular models, primarily composed of carbon, hydrogen, oxygen, and nitrogen atoms, represented by spheres of different colors (black, white, red, blue) connected by lines.

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Pharmacy Management & Medicine Checker

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*****Important Note.*****

- All Documents and Details about the project will be On GitHub.
Feel Free to check it at anytime By clicking the following link:

[Pharmacy-Management-Project/Pharmacy Management Project at main · FadyEmad12/Pharmacy-Management-Project](#)

Content:

- **Project Title.**
- **Problem Statement / Motivation**
- **Project Goals / Objectives**
- **Tools and Technologies Used**
- **Features / Functionality**
- **Development Process / Story**
- **Project Outcome / Results**
- **Future Enhancements**

Project Title and Problem Statement / Motivation

- **Project Title:**
Pharmacy Management & Medicine Checker System.
- **Problem Statement / Motivation:**
Managing a pharmacy manually is **time-consuming and error-prone**. Pharmacists often face challenges such as:
 - **Tracking** medicine stock
 - **Handling** customer prescriptions efficiently
 - **Recording** sales and profits
 - **Downloading** the Invoices of the sold items per day.
 - Our project solves these issues by **automating pharmacy operations**, improving accuracy, saving time, and ensuring better customer service.

Project Goals / Objectives

- The main objectives of the Pharmacy Management System are:
- To provide **accurate tracking of medicines** in stock
- To **record and manage sales** efficiently
- To **generate reports** on profits, sales, and inventory
- To **make it very easy** for the customers to check the Medicines instead of Going to the Pharmacy.
- To **minimize human errors** in pharmacy operations
- To **Prepare the invoices** for the items are sold at anytime.

Tools and Technologies Used

1- Programming Languages & Frameworks

- **C#** - Main programming language for backend logic
- **.NET Core** - Framework for building scalable and secure backend applications
- **ASP.NET Web API** – To create RESTful APIs for handling database operations and communication between frontend and backend.

2- Database System

- **SQL Server** - Relational database to store medicine data, sales records, and other pharmacy-related information
- **Entity Framework (Database-First approach)** - Object-relational mapper (ORM) for easier database interaction using C# classes

3- Frontend / Client-Side

- **HTML5** - Structuring web pages
- **CSS** - Styling the application
- **JavaScript** - Adding interactivity and dynamic behavior to the frontend



4- Additional Tools & Technologies

- **Node.js** - For running frontend build tools or server-side scripts if needed
- **Visual Studio / VS Code** - IDEs for coding, and debugging.
- **Trello** - For Project Management
- **Whatsapp & GitHub** - Version control and project collaboration platform

Features / Functionality

1- Medicine Management:

- Add, update, delete medicine records
- Track stock quantity

2- Customer Interaction:

- **Customers can search for medicines** by name or type
- No customer data is stored or payments are taken

3- Sales and Billing:

- Record all sales by the pharmacist
- **Print invoices after recording sales**
- Automatically update inventory

4- Reports and Analytics:

- Generate sales reports
- Track profit and loss

5- User Authentication:

- Login system for pharmacists and admins
- Role-based access to ensure security

Development Process / Story

1- Planning: → Was Made on Trello and GanttProject.

The project started by carefully analyzing the needs of a typical pharmacy. We identified the **key tasks that needed automation**, including:

- **Managing** medicine stock efficiently
- **Recording** sales accurately
- **Allowing** customers to search for medicines easily
- **Generating** detailed sales and profit reports

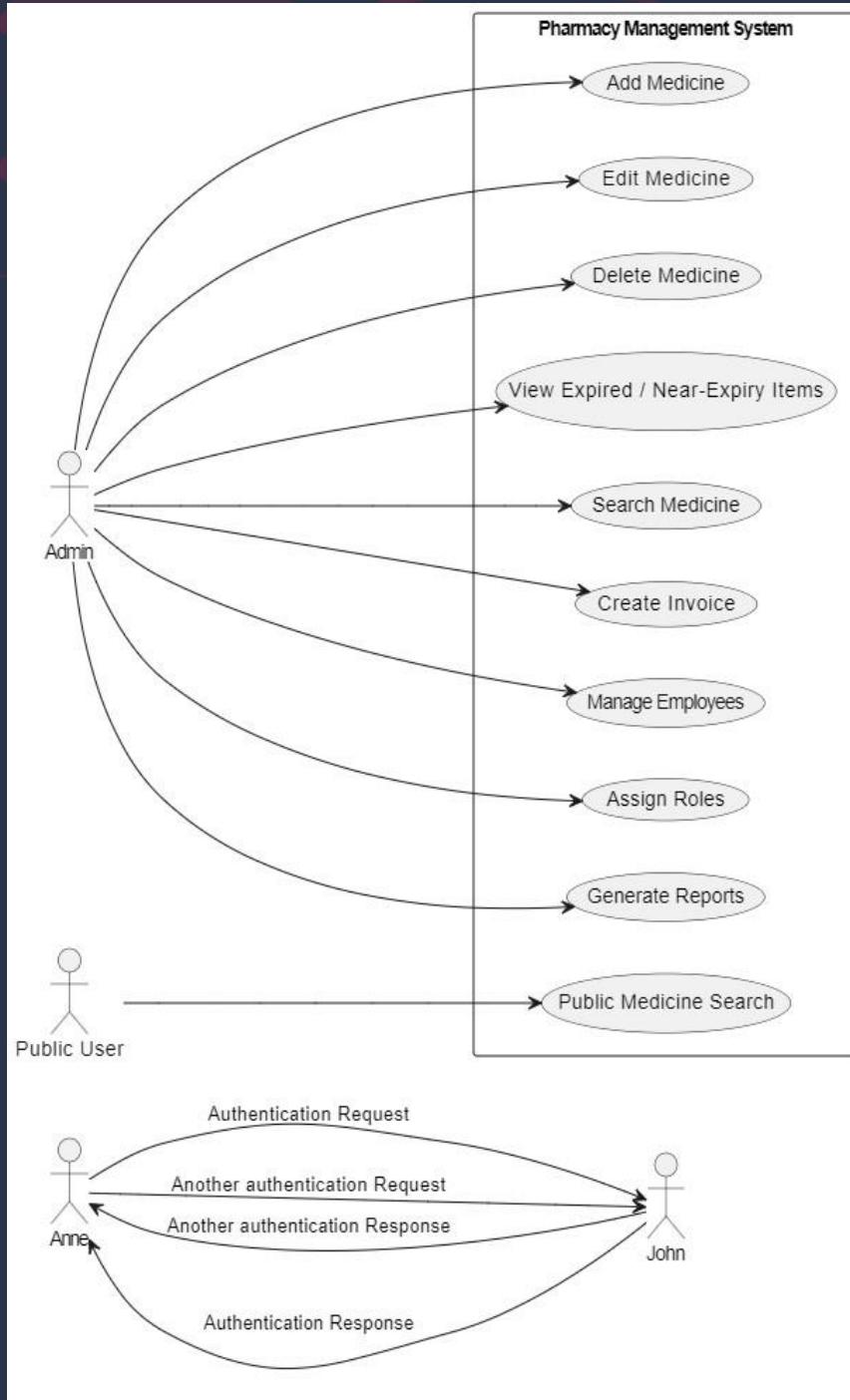
We also outlined the **roles of users** in the system – pharmacists as admins who manage the data, and customers who can search for medicines. This phase included sketching initial workflows and creating a **requirements document** to guide development.

2- Design:

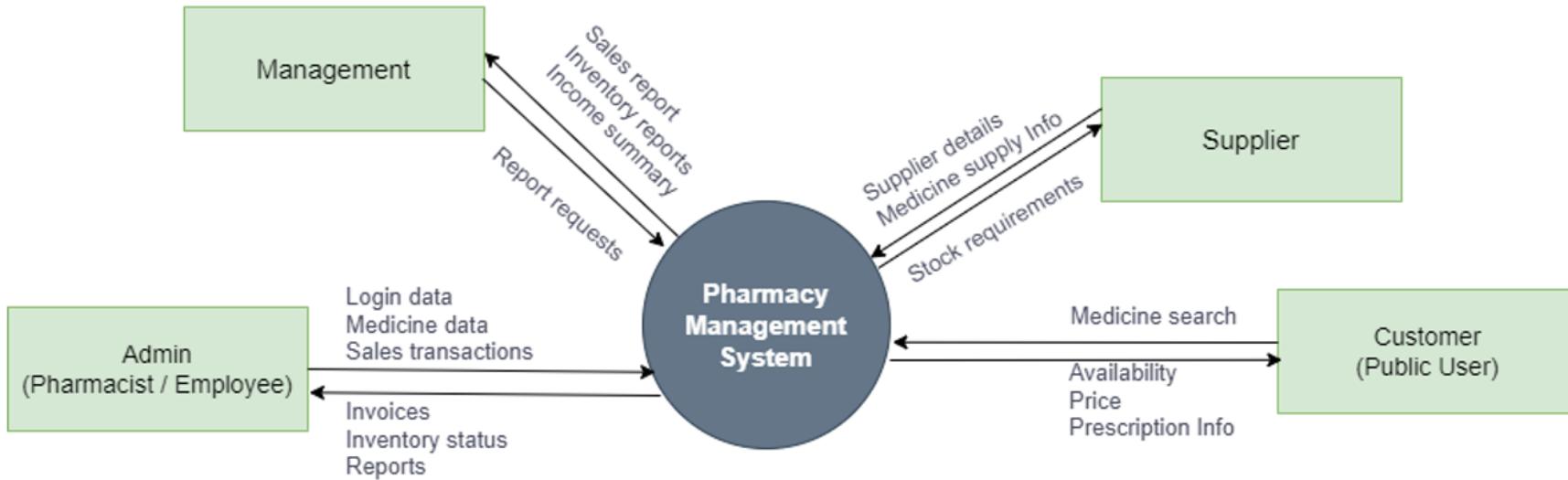
Once the requirements were clear, we moved to designing the system:

- **Created** a **relational database schema** to store medicines, stock quantities, and sales records efficiently. Tables were designed with proper relationships and constraints to maintain data integrity.
- **Developed** a **user-friendly interface design** that is simple for pharmacists to navigate and easy for customers to search for medicines.
- **Designed forms for adding/updating medicines** and **modules for recording sales**.
- **Planned** the **invoice printing module** to generate professional receipts automatically after each recorded sale.
- **Drew** flowcharts and diagrams to visualize **how each module interacts** with others, ensuring smooth integration.

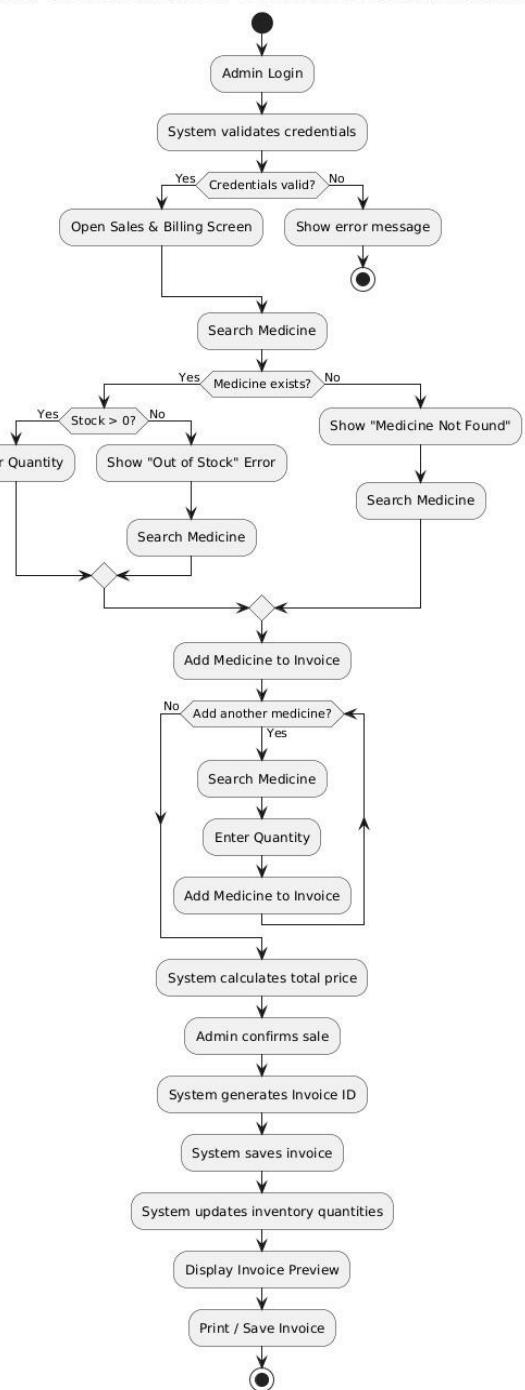
Use Case



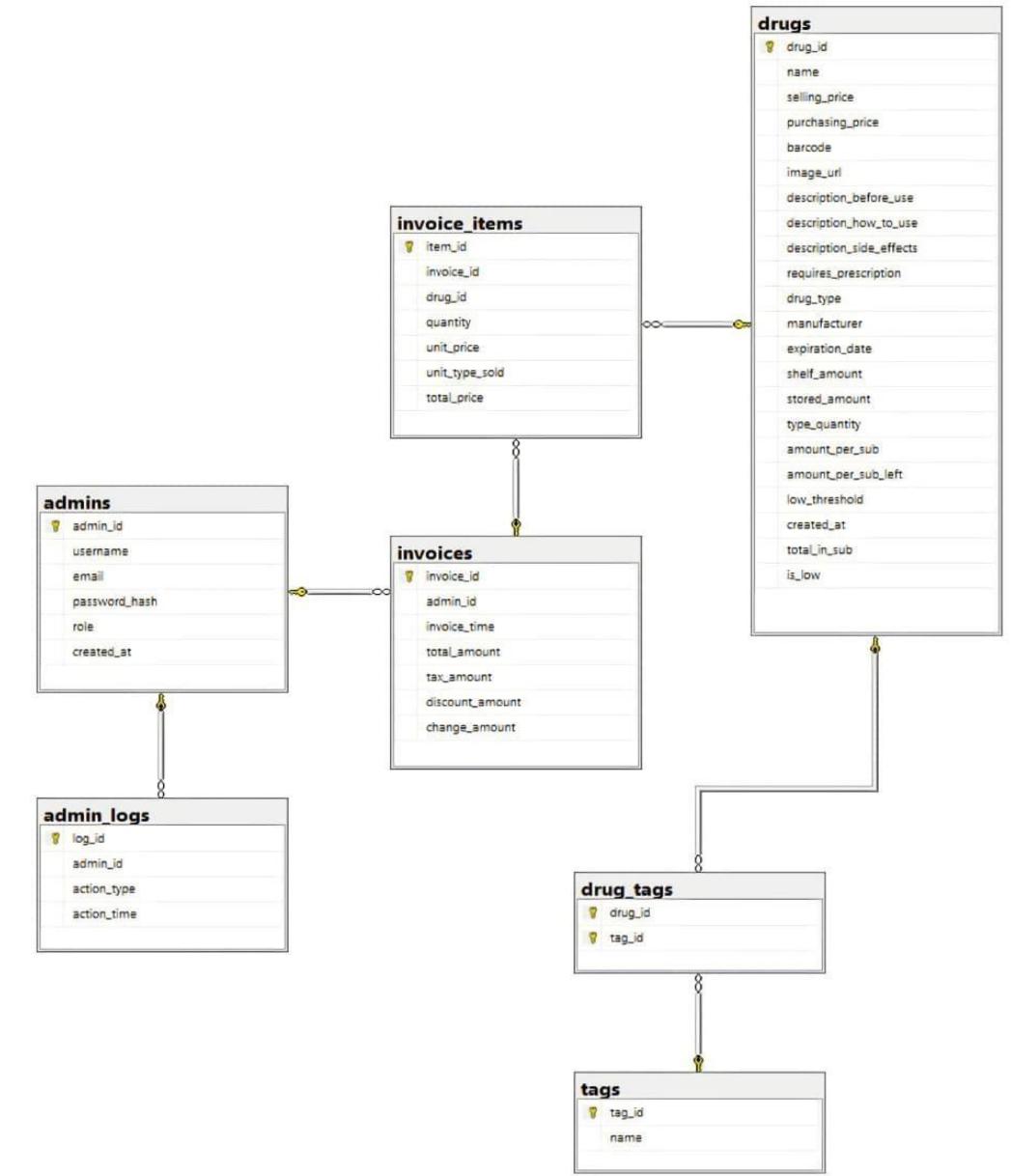
Context Diagram: Pharmacy management system



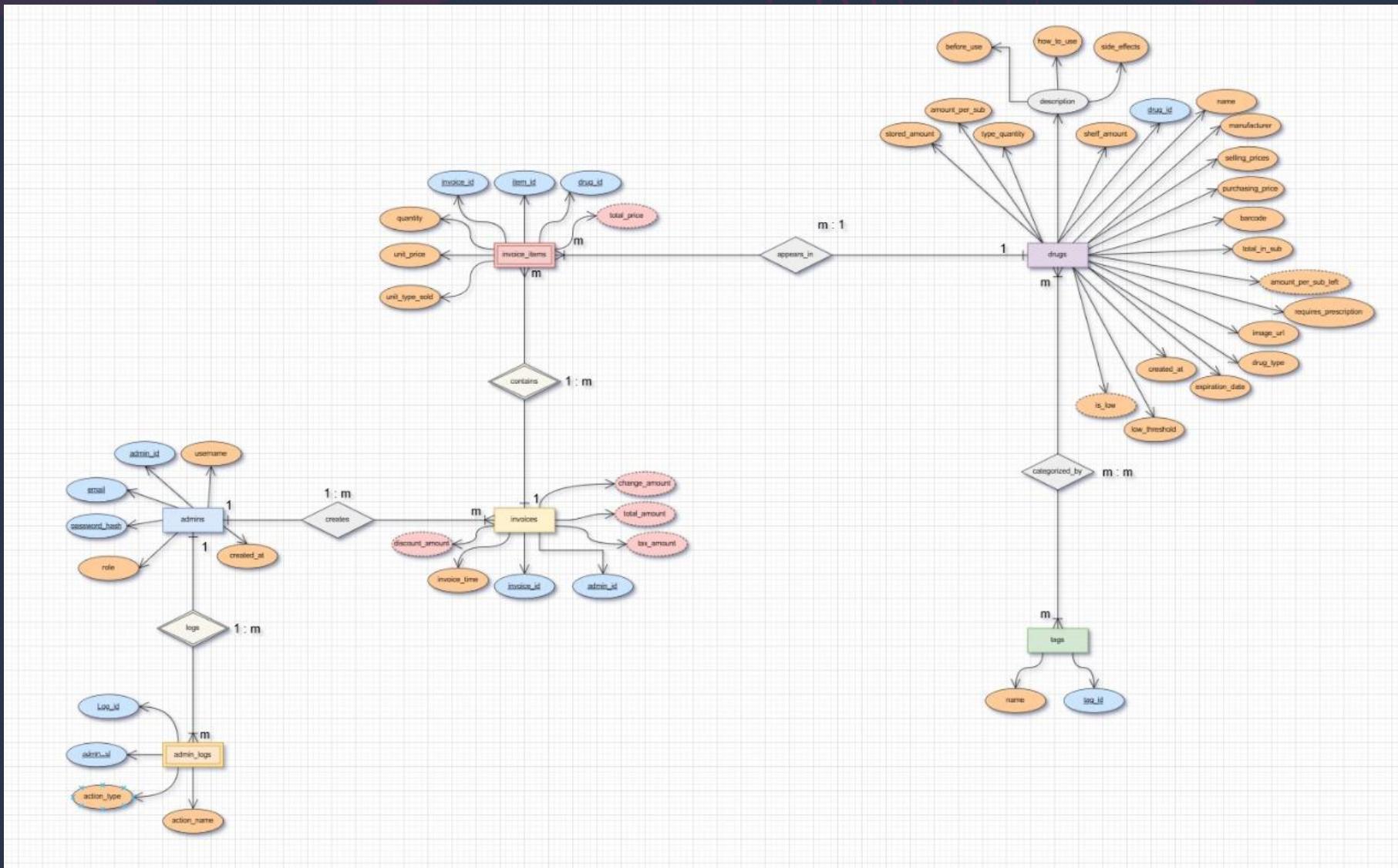
Pharmacy Management System - Medicine Sales Activity Diagram



Class Diagram



Entity Relationship Diagram (ERD) for the system



3- Implementation:

The system was developed in modular components to simplify coding and testing:

- **Inventory Module:** Allows adding, updating, and deleting medicines. Stock levels are automatically updated after each sale.
- **Sales Module:** Records sales, calculates totals, and integrates with the invoice printing feature.
- **Customer Search Module:** Enables customers to search for medicines by name or type without entering personal data.
- **Reporting Module:** Generates daily, weekly, and monthly sales reports for management review.
- During implementation, we applied **best coding practices**:
 - Modular code to make updates easier
 - Proper comments and documentation for each function
 - Input validation to prevent errors or invalid entries

4- Challenges & Solutions:

During development, we faced several challenges:

- **Challenge:** Accurate sales tracking and inventory updates.
Solution: Implemented SQL queries that automatically update stock quantities immediately after each sale and store complete sales history for reporting.
- **Challenge:** Ensuring the invoice prints correctly with all details.
Solution: Developed a dynamic invoice generation module that formats and prints invoices after each recorded sale, including medicine names, quantities, prices, and total amount.
- **Challenge:** Designing an interface that is **both easy for staff and customers.**
Solution: Used a clean layout with clear menus, search functionality for customers, and simple forms for pharmacists.

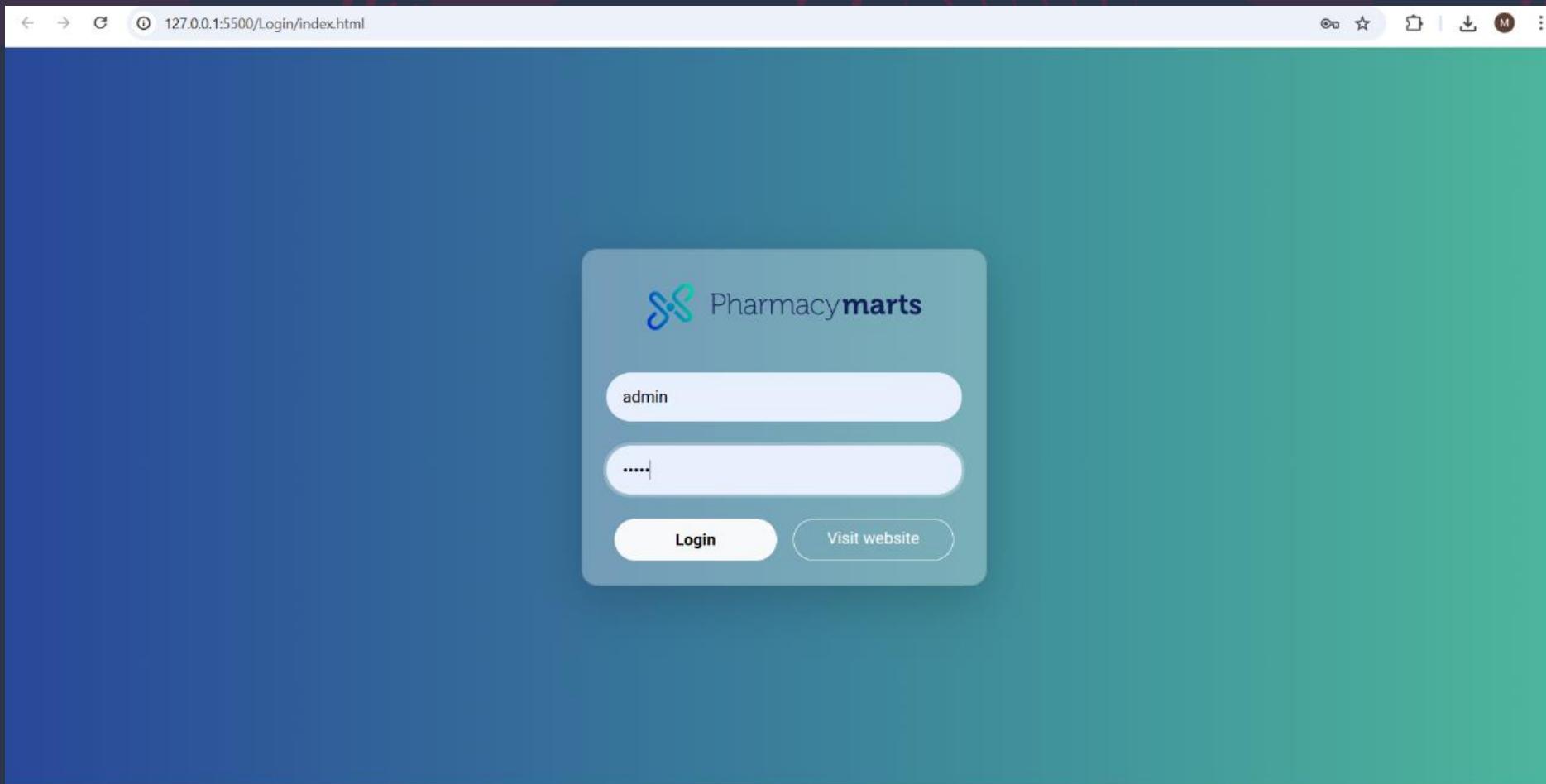
Project Outcome / Results

- **Reduces** manual work for pharmacists
- **Ensures** accurate tracking of medicine stock
- **Sales and billing** are faster and error-free
- **Generates** detailed reports
- **Invoices** can be printed after sales
- **Customers** can **quickly search** for medicines without entering personal information.



Screenshots from the Result of the Implementation

Admin Side



Hello, admin

Dashboard

Medicines

Admin

Invoices

Cashier

Logout

Dashboard Overview

⟳ Refresh Data

Monthly Sales



748.5 \$

↑ 8% from last month

Annual Sales



748.5 \$

↑ 15% from last year

Total Products in Store



510

Available for sale

Close to Expiration



0

2.02% from total products

Best-selling Products

Most sold products every month

Voltaren Emulgel

Barcode: 7611136155512

The Best

Panadol Baby & Infant Suspension

Barcode: 6221234567890

Second

Otrivin Baby Saline Spray

Barcode: 6229876543210

Third

Amoxil 500mg Capsules

Barcode: 6225554443332

Fourth

Low Stock Alert

Items that need restocking

127.0.0.1:5500/Cashier/index.html

Search item Search

Current Order

Item	Quantity	Price
Panadol Baby & Infant Suspension	2	31.00\$
Amoxil 500mg Capsules	1	25.00\$

Total: 56.00 EGP
Cash in: 100
Change: 44.00 EGP

Items

Item	Price	Add
Panadol Baby & Infant Suspension	15.5\$	- 2 +
Otrivin Baby Saline Spray	12\$	Add
Amoxil 500mg Capsules	25\$	- 1 +
Tobrex Ophthalmic Solution	22\$	Add
Voltaren Emulgel	45\$	Add

← → ⌛ ① 127.0.0.1:5500/invoices/viewInvoice.html?id=1

Hello, admin

Dashboard

Medicines

Admin

Invoices

Cashier

Logout

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Casher Name: admin

Date: 31/12/2025 20:13

ID	Item Name	Quantity	Unit price	Total
1	Panadol Baby & Infant Suspension	4	15.50 EGP	62.00 EGP
2	Otrivin Baby Saline Spray	1	12.00 EGP	12.00 EGP
3	Amoxil 500mg Capsules	3	25.00 EGP	75.00 EGP
4	Tobrex Ophthalmic Solution	1	22.00 EGP	22.00 EGP
5	Voltaren Emulgel	2	45.00 EGP	90.00 EGP

Total 261.00
EGP

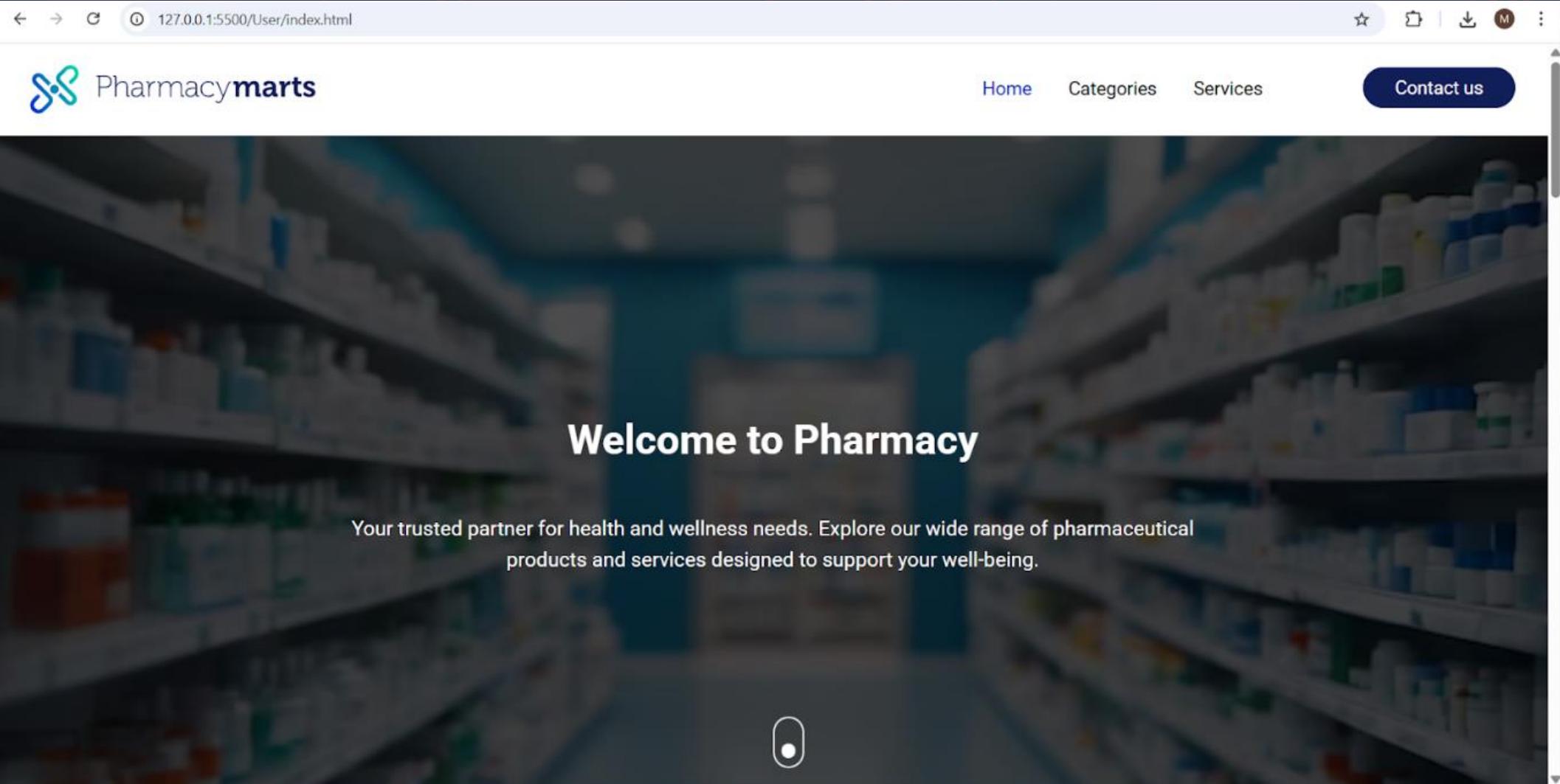
127.0.0.1:5500/Invoices/index.html

Hello, admin

Search user Search

ID	Admin Name	Total	Date	Action
1	admin	62.00 EGP	31/12/2025 21:56	<button>View</button>
2	admin	261.00 EGP	31/12/2025 22:13	<button>View</button>
3	admin	270.00 EGP	31/12/2025 22:23	<button>View</button>
4	admin	180.00 EGP	31/12/2025 22:42	<button>View</button>
5	admin	12.00 EGP	31/12/2025 22:42	<button>View</button>
6	admin	117.00 EGP	01/01/2026 00:56	<button>View</button>
7	admin	169.50 EGP	01/01/2026 03:53	<button>View</button>
8	admin	225.00 EGP	01/01/2026 04:00	<button>View</button>
9	admin	25.00 EGP	01/01/2026 04:08	<button>View</button>
10	admin	270.00 EGP	01/01/2026 04:20	<button>View</button>
11	admin	37.00 EGP	01/01/2026 04:54	<button>View</button>
12	admin	22.00 EGP	01/01/2026 17:08	<button>View</button>

Customer Side



127.0.0.1:5500/User/index.html

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Welcome to Pharmacy

Your trusted partner for health and wellness needs. Explore our wide range of pharmaceutical products and services designed to support your well-being.



Home Categories Services

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Categories



Drugs

Medicines for common health conditions and daily care.

[View items →](#)



Products

Daily essentials for personal care and wellness support.

[View items →](#)



Baby Care

Essential products for babies' health, comfort, and hygiene.

[View items →](#)

Services



← → ⌛ 127.0.0.1:5500/User/index.html#services

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Services



Blood Pressure

Blood pressure (BP) is the pressure of circulating blood against the walls of blood vessels. Most of this pressure results from the heart pumping blood through the circulatory system. When used without qualification, the term "blood pressure" refers to the pressure in the large arteries.

127.0.0.1:5500/User/index.html#services

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Contact Information

If you have any questions or need assistance, our pharmacy team is here to help. Feel free to reach out to us through phone, email, or visit us at our location. We are committed to providing reliable support and ensuring you receive the best care and service possible.

Our contact details :

- 0100 000 0000
- Dr Abd El-Aziz El-Shennawy, Gameat Al Azhar, Qesm Than Madinet Nasr, Cairo Governorate
- Sat–Thu: 9 AM – 12 AM | Friday: 2 PM – 12 AM
- pharmacy@example.com

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Future Enhancements

- **Place** online orders or reservations
- **Integrate** barcode scanning for medicines
- **Automated** alerts and notifications
- **User roles and access control** improvements
- **Mobile-friendly interface / Mobile app integration**
- **Integration with accounting systems and make Transactions**

The End

